

SOME SALIENT INTERVAL TYPES FOUND WITHIN THE PERFECT FOURTH

	DECIMAL RATIO	RATIO	DESCRIPTION
Diatessaron	1.8348	E.T.	equal-tempered* perfect fourth
	1.3333	4/3	perfect fourth
	1.2857	9/7	septimal major third
	1.2656	81/64	ditone (Pythagorean major third)
	1.2599	E.T.	equal-tempered major third
	1.25	5/4	major third (5-limit just)
	1.2	6/5	minor third (5-limit just)
	1.1892	E.T.	equal-tempered minor third
	1.1851	32/27	Pythagorean minor third
	1.1667	7/6	septimal minor third
	1.1429	8/7	septimal whole tone
	1.125	9/8	major tone (Pythagorean whole tone)
	1.1225	E.T.	equal-tempered whole tone
	1.1111	10/9	minor tone (5-limit whole tone)
	1.1	11/10	greater neutral second (11-limit)
	1.0909	12/11	lesser neutral second (11-limit)
	1.0666	16/15	major half tone (diatonic 1/2-tone)
	1.0595	E.T.	equal-tempered half step (12th root of 2)
	1.0535	256/243	limma (Pythagorean 1/2-tone)
	1.0417	25/24	minor tone (chromatic 1/2-tone)
1.0370	28/27	septimal chroma or 1/3-tone	
1.0313	33/32	Al Farabi 1/4-tone	
1.0	1/1		

*Equal-tempered (E.T.) refers to 12-tone equal temperament

33/32 The Al Farabi 1/4-tone; the 11/8 above the 5th scale degree or dominant in western musical theory (PA in Indian sargam); the 11/8 above the tonic SA forms the 33/32 with MA.

28/27 Found in Archytas' diatonic, chromatic and enharmonic tetrachords, for example, as the difference between the 9/7 septimal major third (9/8 + 8/7) and the perfect fourth in the diatonic tetrachord.

25/24 The chromatic half step (such as C to C#); found a 5/4 major third above the 6th scale degree (or V of ii in European harmonic language); a leading tone half step.

256/243 The limma; the interval that separates the ditone from the perfect fourth; the ditone results from two consecutive Pythagorean whole steps (9/8 + 9/8) in the Pythagorean diatonic

tetrachord (also known as Ptolemy's ditonic diatonic); this interval is the characteristic $\frac{1}{2}$ -tone in Pythagorean tuning; also found five perfect fifths below the tonic or reference pitch.

E.T. The equal-tempered $\frac{1}{2}$ -tone; found on fixed-pitch instruments in equal temperament (such as modern pianos and electronic keyboards)

16/15 The major half tone; the diatonic half step (for example E to F or C to Db); found a major third below the subdominant in western music; the difference between the major third and perfect fourth in Ptolemy's diatonic syntonon tetrachord where the $\frac{10}{9} + \frac{9}{8}$ yields a $\frac{5}{4}$ major third; $\frac{10}{9} + \frac{9}{8} + \frac{16}{15}$ forms the essential diatonic tetrachord in 5-limit just intonation.

12/11 Lesser neutral second; found in Ptolemy's equable diatonic ($\frac{10}{9} + \frac{11}{10} + \frac{12}{11}$); the intervals found in the upper tetrachord of the 6-series scale (from 6th partial to 12th partial) found in the harmonic series (see Lou Harrison's composition *Scenes from Nek Chand*).

11/10 Greater neutral second; also found in Ptolemy's equable diatonic (see above).

10/9 Minor tone; and essential interval in the 5-limit just diatonic tetrachord of Ptolemy (the diatonic syntonon); it is produced by the superparticular division of the $\frac{5}{4}$ major third ($\frac{10}{9} + \frac{9}{8}$); can also be found a $\frac{5}{4}$ major third above the $\frac{16}{9}$ flat 7th, which is two perfect fifths below the tonic.

E.T. Equal tempered whole-tone

9/8 Major tone. The Pythagorean whole tone; this is the standard whole-step in Pythagorean tuning; $\frac{9}{8} + \frac{9}{8}$ produces the $\frac{81}{64}$ Pythagorean major third or ditone; can also be found two $\frac{3}{2}$ perfect fifths above the tonic.

8/7 Septimal whole tone; found in Archytas' diatonic tetrachord (also known as Ptolemy's tonic diatonic): $\frac{9}{8} + \frac{8}{7} + \frac{28}{27}$

7/6 Septimal minor third; the septimal flat-7th above the 4th scale degree (or subdominant in western harmonic language).

32/27 Pythagorean minor third; the interval between the ditone and the $\frac{3}{2}$ perfect fifth.

E.T. Equal tempered minor third

6/5 Minor third in 5-limit just intonation; found a $\frac{5}{4}$ major third below the 5th scale degree or dominant.

5/4 Major third in 5-limit just intonation; the essential major third in triadic harmony in just intonation; results from the downward resolution from the perfect fourth against a tonic drone (as in raga Shuddh Saarang).

E.T. Equal tempered major third

81/64 Ditone or Pythagorean major third; the result of two Pythagorean whole steps ($\frac{9}{8} + \frac{9}{8}$); treated as a dissonant interval in the Middle Ages, but well suited for melodic music because of the consistent whole steps.

9/7 Septimal major third; slightly wider than the Pythagorean major third, but more consonant; results from the use of consecutive whole tones of $\frac{9}{8} + \frac{8}{7}$.

4/3 Perfect fourth; the diatessaron in Ancient Greek music theory; the reciprocal of $\frac{3}{2}$ or the fifth below.

E.T. Equal tempered perfect fourth; the 4th in equal temperament is slightly larger than $\frac{4}{3}$ because of the slightly narrowed (by 2 cents) perfect fifths.